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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/864,838   | 05/24/2001  | Luca Rigazio         | 9432-000139         | 4995             |
| 27572  | 7590        | 09/09/2004           | EXAMINER            |                  |
| HARNESS, DICKEY & PIERCE, P.L.C.<br>P.O. BOX 828<br>BLOOMFIELD HILLS, MI 48303 |             |                      | AZAD, ABUL K        |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2654                |                  |

DATE MAILED: 09/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                       |  |
|------------------------------|--------------------------------------|---------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/864,838 | <b>Applicant(s)</b><br>RIGAZIO ET AL. |  |
|                              | <b>Examiner</b><br>ABUL K. AZAD      | <b>Art Unit</b><br>2654               |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 May 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/16/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. Claims 1-22 are pending in this Office Action.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamaguchi et al. (US 6,026,359).

As per claim 1, Yamaguchi teaches, “a method of performing speaker adaptation upon speech models associated with a speech recognizer, the speech models having been created under first environmental conditions” (Fig. 4, preliminary process), comprising:

“obtaining input speech under second environmental conditions from a speaker for whom the speech models are to be adapted and extracting observation data from said input speech” (Fig. 4, element S5 “calculation of adapted noisy speech HMM in Approximation using Taylor Expansion”);

“decoding said observation data to ascertain state segmentation data associated with said observation data” (col. 11, lines 57-67);

“providing a linear approximation operator that embeds a priori knowledge of said first environmental conditions” (col. 8, lines 6-54);

“operating upon said observation data using said linear approximation operator and said state segmentation data to transform said observation data into compensated observation data that approximates the observation data under said first environmental conditions” (Fig. 1 and Fig. 2);

“applying a speaker adaptation operation upon said compensated observation data to generate adapted speech models for said speaker” (col. 1, lines 27-31).

As per claim 2, Yamaguchi teaches, “wherein said observation data is extracted by performing feature extraction upon said input speech” (col. 9, lines 3-24).

As per claim 3, Yamaguchi teaches, “wherein said observation data is extracted by generating cepstral coefficients based on said input speech” (col. 9, lines 1-2).

As per claim 4, Yamaguchi teaches, “determining the difference between said first and second environmental conditions” (col. 11, lines 41-45);

“using said difference and said linear approximation operator to alter said speech models to at least approximately match said second environmental conditions” (col. 11, lines 52); and

“using said altered speech models to perform said decoding step” (col. 11, lines 52-56).

As per claim 5, Yamaguchi teaches, “wherein said operating step is performed by applying the inverse of said linear approximation operator to said observation data” (col. 10, lines 15-23).

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As per claim 6, Yamaguchi teaches, "wherein said step of altering said speech models prior to decoding is performed by applying said linear approximation operator to said speech models; and wherein said operating step is performed by applying the inverse of said linear approximation operator to said observation data" (col. 10, lines 15-24).

As per claim 7, Yamaguchi teaches, "wherein said adaptation operation is commutative with said linear approximation operator" (col. 11, lines 23-37).

As per claim 8, Yamaguchi teaches, "wherein said adaptation operation employs maximum a posteriori estimation" (col. 11, lines 4-56).

As per claim 9, Yamaguchi teaches, "wherein said adaptation operation employs maximum likelihood linear regression" (col. 13, lines 56-67).

As per claim 10, Yamaguchi teaches, "wherein said linear approximation operator employs a Jacobian matrix" (col. 10, lines 62-67).

As per claim 11, Yamaguchi teaches, "wherein said linear approximation operator employs a Jacobian matrix modified by a linear transformation" (col. 9, lines 10-33).

As per claims 12-22, they are interpreted and thus rejected for the same reasons set forth in the rejection of claims 1-11.

#### ***Contact Information***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Abul K. Azad** whose telephone number is **(703) 305-3838**.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richemond Dorvil**, can be reached at **(703) 305-9645**.

Any response to this action should be mailed to:

**Commissioner for Patents**

**P.O. Box 1450**

**Alexandria, VA 22313-1450**

Or faxed to:

**(703) 872-9314**

(For informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center's Customer Service Office at telephone number **(703) 306-0377**.

  
Abul K. Azad

August 20, 2004